Workshop to Discuss Defining Large Confined Animal Facilities

California Air Resources Board
August/September 2004



Workshop Agenda

- Introductions
- Summary of SB700 Requirements
- Possible Concepts for Defining Large Confined Animal Facilities (large CAFs)
- Status of Research
- Comments and Discussion of Options
- Next Steps and Future Meetings
- Adjourn

Meeting Locations

- Workshops in four locations:
  - Modesto - August 24th
  - Tulare - August 25th
  - Chino - August 26
  - Sacramento - September 2 (with internet webcast)

Some ARB & District Responsibilities Under SB700

ARB

- Define Large CAF
- Approval by Board
- Define best livestock emission factors

Districts

- Adopt rules requiring large CAF emissions mitigation
- Rule stringency varies by ozone attainment status

ARB Large CAF Responsibilities

- On or before July 1, 2005, the state Air Resources Board shall develop a definition for the source category of a "large confined animal facility" (SB700 (Florez) - H&SC 40724.6 (a))
- In developing the definition the Board shall review all available scientific information including:
  - Emission factors for confined animal facilities
  - Effect of those facilities on air quality
  - Other relevant scientific information
  - Emissions as they may affect attainment and maintenance of air quality standards

Definition: Confined Animal Facility

- Domesticated animals maintained in restricted areas for commercial agricultural purposes
- Feeding is not by grazing
- Including but not limited to:
  cattle, calves, horses, sheep, goats, swine, rabbits, chickens, turkeys, ducks
- "Facility" includes, but is not limited to:
  any structure, building, corral, coop, waste collection & treatment system, etc.

District Large CAF Responsibilities

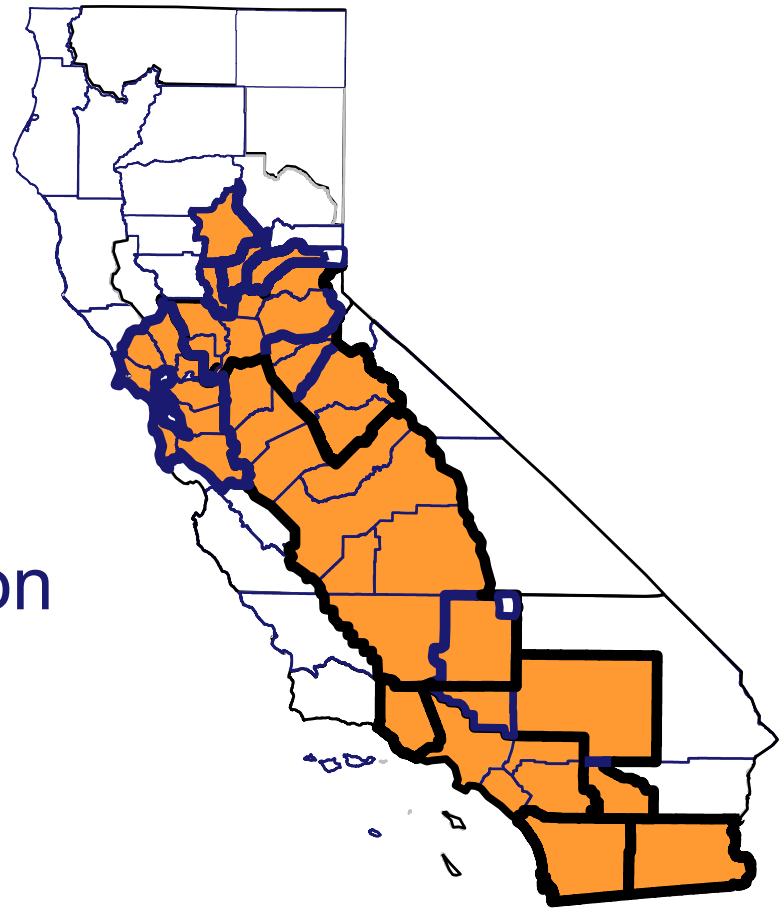
- **In ozone federal nonattainment areas:**
  - Adopt, implement, and submit for inclusion in the SIP, a rule requiring large CAFs to submit a plan to reduce air contaminants to the extent feasible (H&SC 40724.6(b))
- For severe and extreme areas, large CAFs will use Best Available Retrofit Control Technology (BARCT) to reduce emissions
- In moderate and serious areas, large CAFs will use Reasonably Available Control Technology (H&SC 40724.6(d)(1)(B))

District Large CAF Responsibilities

- **In ozone federal attainment areas:**
  - Adopt a rule requiring large CAFs to reduce air contaminants to the extent feasible
  - **Unless** a district board makes finding in public hearing that large CAFs will not contribute to a violation of any state or federal standard (H&SC 40724.7(a) & 40724.6(b))
- No specific standard of control specified for ozone attainment areas
  (CAPCOA SB 700 Summary & Implementation V(c), April 2004)

Ozone Federal Nonattainment

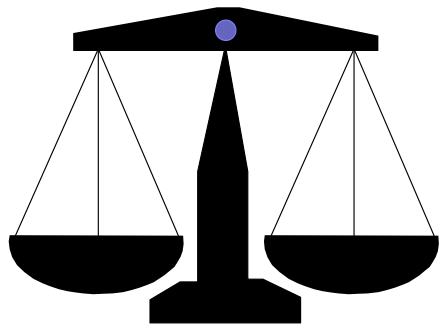
- Ozone Federal Nonattainment areas as of 1/1/04
  - Antelope Valley
  - Bay Area
  - Butte
  - Feather River
  - Imperial
  - Kern County
  - Sacramento Region
  - San Joaquin
  - South Coast
  - Ventura



Map: Jan2004 State of State Presentation

District Large CAF Rules

- In developing large CAF rules, districts shall perform an assessment of the impacts of the rule or regulation to include:
  - Number and size of affected sources
  - Nature and size of emissions
  - Emissions reduction potential
  - Impacts on employment
  - Probable costs
  - Availability & cost effectiveness of alternatives
  - Technical & practical feasibility

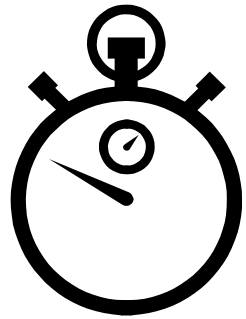


H&SC 40724.6(d)

Definition versus Rules

- The ARB definition of “large CAF” will determine which facilities are required to submit mitigation plans
- District rules will determine the types and levels of mitigation required by facilities
- District rules will consider facility size, practices, existing controls, different livestock types, and other factors

Timeline for Large CAFs



January 1: SB700 effective

July 1: Deadline to define "large CAF"

January 1 (or 6 months within rule adoption): Large CAF emissions mitigation plans due

2004	2005	2006	2007	2008

July 1:

- **Ozone federal nonattainment areas** must adopt, implement, and submit for inclusion in the SIP a rule requiring large CAFs to submit a mitigation plan to reduce air contaminants to the extent feasible
- **Ozone federal attainment areas** must adopt a similar rule unless the district board makes finding in a public hearing that large CAFs will not contribute to violations of state or federal standards

July 1 (or 6 months within receipt of plan): Districts approve mitigation plans

July 1 (or 1 year within receipt of plan): Large CAF must comply with mitigation plan

Defining Large CAFs

- We are working with stakeholders over the next eight months to develop the large CAF definitions
- There are numerous potential options for defining large CAFs
- Significant research is ongoing to better understand livestock waste emissions

Some Ideas For Definitions

- There are many possibilities for defining large CAFs:
  - Number of head
  - Emissions
  - Waste handling practices
  - Historical definitions
  - Economic factors
  - Others
- The following slides show a sampling of some ideas for discussion

Animal Populations

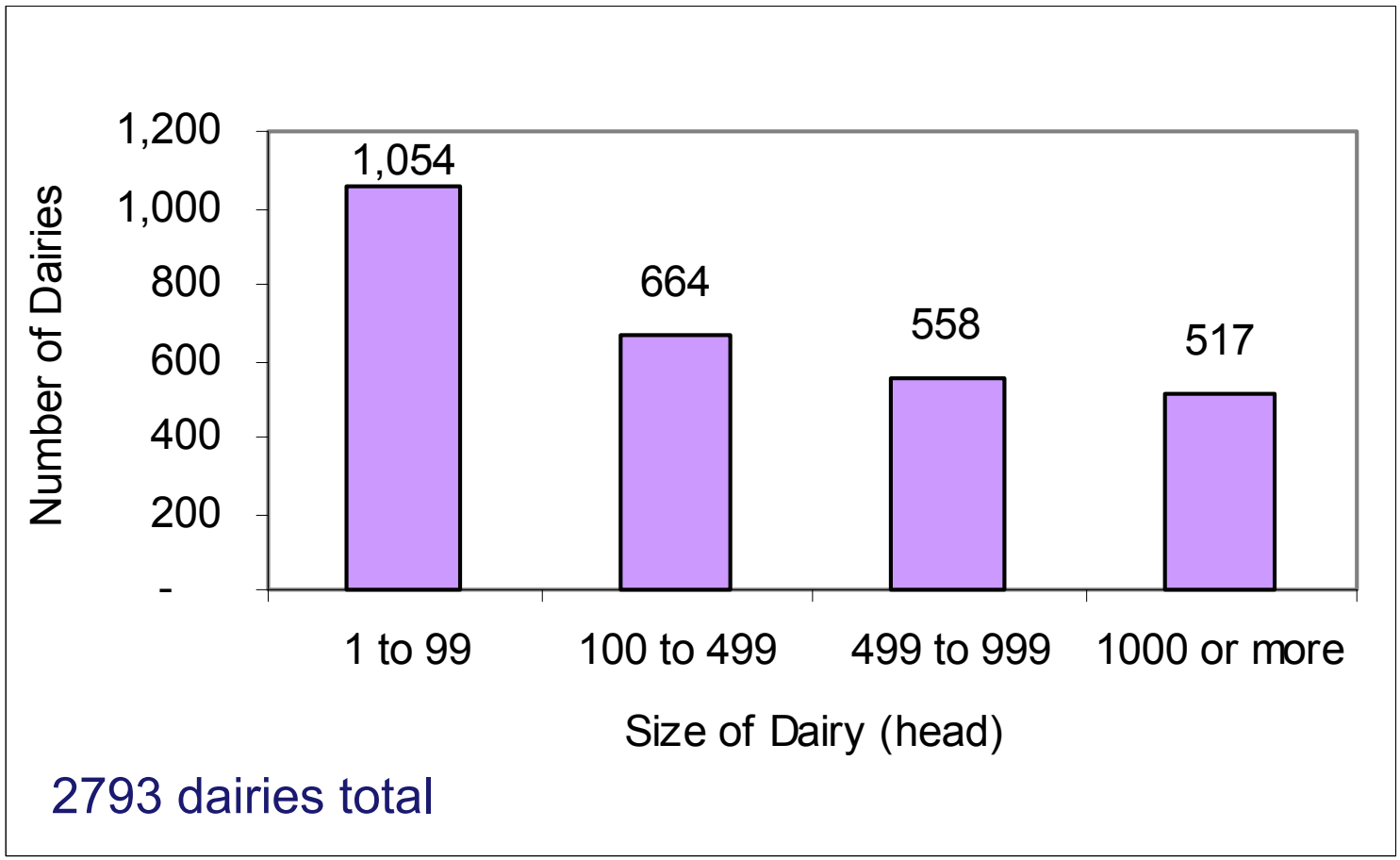
- California Livestock Population Estimates

Livestock Type	Population
Feedlot	511,163
Dairy	3,052,905
Broiler	43,145,455
Layer	24,056,000
Turkey	9,000,000
Swine	170,000
Sheep (non-grazing)	820,000
Horse	112,110
Goat	19,397

Source: Emissions Estimation Methodology for Animal Husbandry, California Air Resources Board. May 2004. http://www.arb.ca.gov/ei/areasrc/arbmiscprocresfarmop.htm

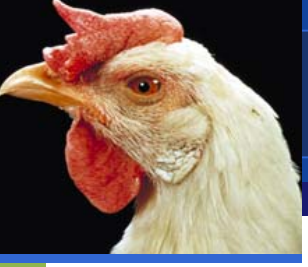
Statewide Dairy Statistics

Number of Dairies versus Size



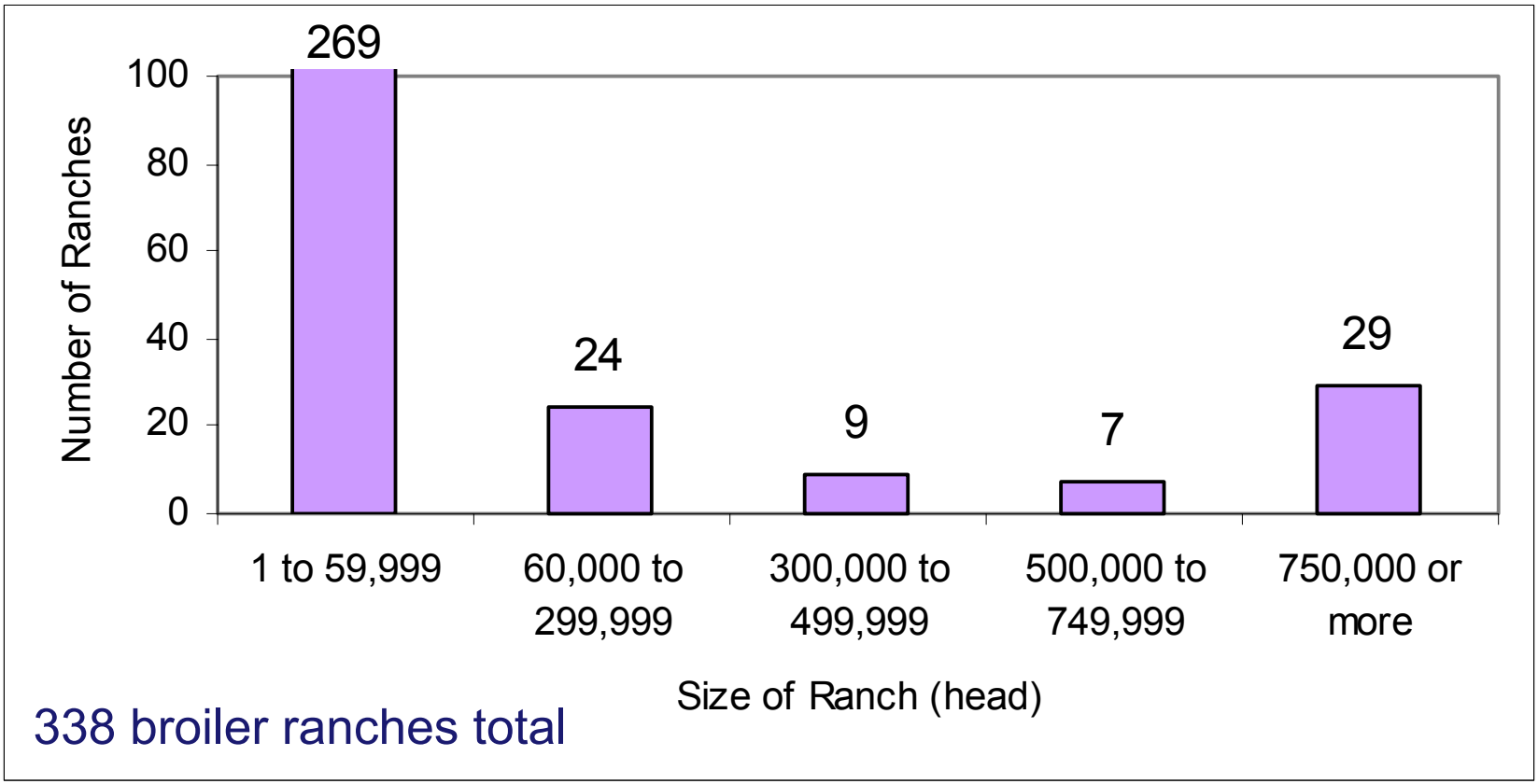
2793 dairies total

Source: Tables 17 & 56, 2002 Census of Agriculture
California State and County Data



Statewide Broiler Statistics

Number of Broiler Ranches versus Size

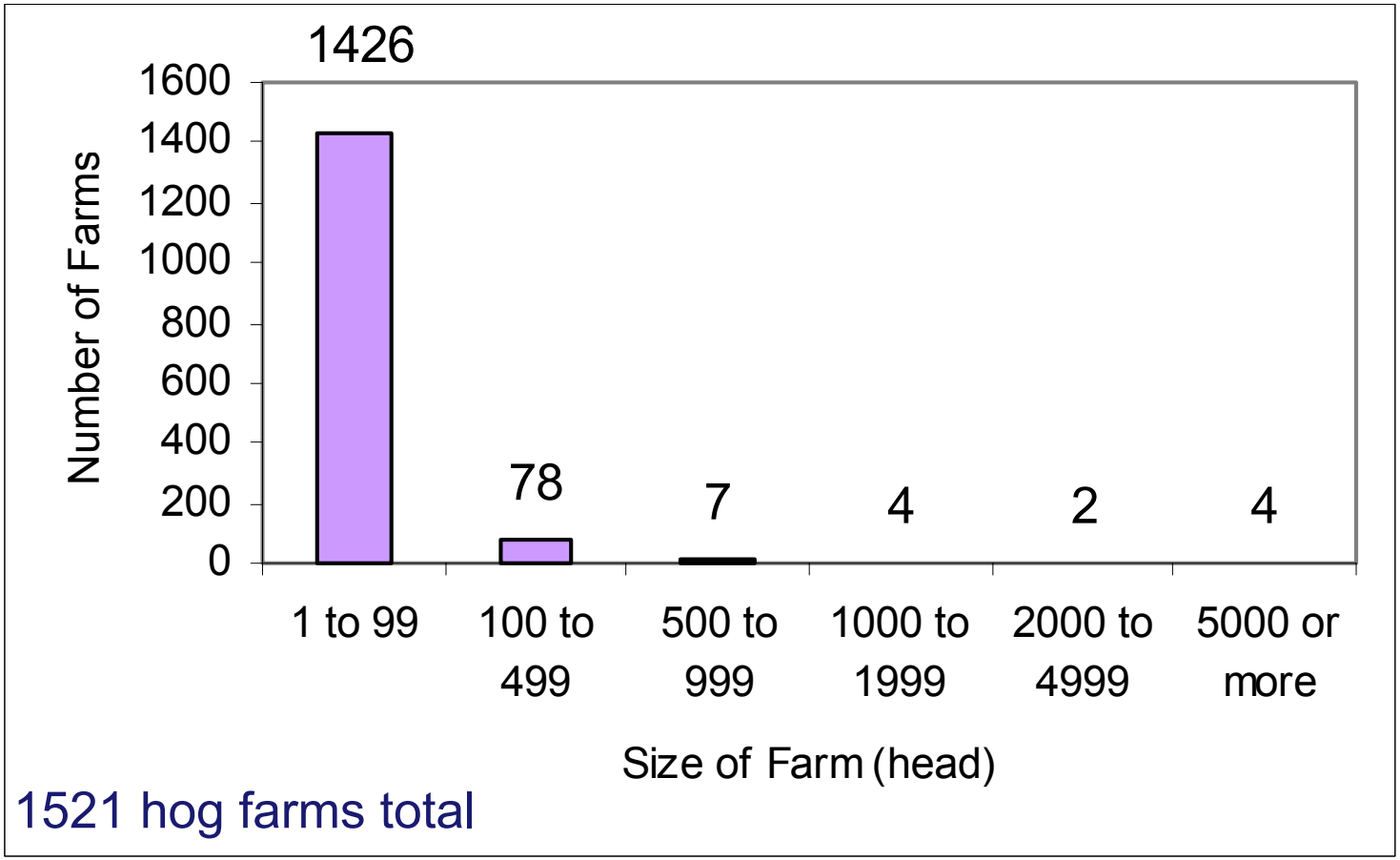


338 broiler ranches total

Source: Table 27, 2002 Census of Agriculture
California State and County Data

Statewide Hog Statistics

Number of Hog Farms versus Size



1521 hog farms total

Source: Table 21, 2002 Census of Agriculture
California State and County Data

Emissions Based Definition

- The definition for large CAFs could be based on facility emissions
- Would such a definition
  - Vary by livestock category?
  - Vary by air basin?
- The following slides are provided for illustration only, and are not suggested as large CAF emission thresholds
- Research is ongoing to update CAF emission estimates

Dairy Emissions Analysis

- Dairies exceeding 10 or 25 tons per year (tpy) of reactive organic gas (ROG)
- Analysis based on current ROG emissions estimates

	Dairies Exceeding 10 tpy ROG	Dairies Exceeding 25 tpy ROG
# of Head Trigger	1562	3906
# of Farms (% of farms)	<500 (19%)	<<500
% of Herd	<64%	<64

Layer Emissions Analysis

- Layer ranches exceeding 10 or 25 tons per year (tpy) of reactive organic gas (ROG)
- Analysis based on current ROG emissions estimates

	Layers Exceeding 10 tpy ROG	Layers Exceeding 25 tpy ROG
# of Head Trigger	104,167	260,417
# of Farms (% of farms)	44 (1.4%)	<44
% of Flock	93%	<93%

Ongoing Research

- Poultry ranch tests
  - Evaluate all pollutants over 40 day period
- Dairy tests
  - Complete dairy upwind/downwind testing (CSU Fresno)
    - Multiple dairies, multiple seasons (CSU Fresno)
  - Chamber based testing (UC Davis)
    - Direct animal emissions, management practices
  - Process specific testing (ARB/SJV Contractor)
    - Emissions from specific dairy sources
  - Field test and analytical methods development (UC Davis & CSU Fresno)

Livestock Research

- Results from most projects are expected early 2005
- ARB will host a livestock research workshop during January 2005 to discuss results
- Results will be used to develop updated livestock emission estimation techniques
- Stakeholder involvement, review, and approval is very important

U.S. EPA Definition

- EPA uses the following facility population values to define large confined animal feeding operations (CAFOs)
- Definition based on water quality concerns

Beef	Dairy	Layers	Broilers	Swine
1000	700	82,000	125,000	2,500

- Are there other definitions we should be aware of?

*Source: Federal Register. Part II EPA. 40 CFR, Part 122.23 (b)(4)

Waste Handling Practices

- Livestock facilities within California use various manure management practices
- Emissions & mitigation rules may vary by management practices

Dairy Waste Handling Practices	Percent Using Practice
Flush Barn	42%
Flush Barn with Solids Separation	19%
Scrape Barn	18%
Scrape Barn with Solids Separation	7%
Other Practices	13%

Source: EPA National Emission Inventory - Ammonia Emissions from Animal Husbandry Operations, Draft Report. January 30, 2004.

What We Have Heard

- Large CAF definition should reflect emissions
- Facility headcount, management practices, and other factors should be considered in definition
- Attainment status of regions is important
- Definition needs to be easily understood
- Consider what will happen if updated emission factors by are not developed by next year
- Seek consistency between water and air quality requirements
- Air district mitigation rules will need to address facility variability

Large CAF Schedule

Large CAF Definition Schedule

August 2004	Workshops to solicit input on defining large CAF
January 2005	Workshop to present livestock emissions research data
March 2005	Workshop to discuss staff proposal to define large CAF
May 2005	Release staff report on proposed large CAF definition
June 2005	Public hearing on staff proposals to define large CAF

Schedule - What's Next

- ARB will meet with:
  - Environmental groups
  - Industry representatives
  - Air districts
  - California Air Pollution Control Officers Association
  - Others
- Proposing a follow-up workshop for November 2004 on preliminary proposal
- Research seminar - January 2005

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  - http://www.arb.ca.gov/planning/agriculture/agriculture.htm (see upcoming meetings)